

What is claimed is:

- 1 1. A liquid pharmaceutical composition or an extemporaneously prepared liquid
2 pharmaceutical composition, comprising:
 - 3 at least one unpleasant tasting drug;
 - 4 polyethylene glycol of molecular weight at least 900, and
 - 5 polyvinyl pyrrolidone and/or copolyvidone.
- 1 2. The method according to Claim 1, wherein said liquid pharmaceutical composition has
2 a pH from about 2.5 to about 8.
- 1 3. The liquid pharmaceutical composition according to Claim 1, wherein the unpleasant
2 drug is an aromatic compound with a hydrophilic group(s) that can form hydrogen
3 bonds such as hydroxyl, carboxylic or amine groups.
- 1 4. The liquid pharmaceutical composition according to Claim 1 wherein the bitter drug is
2 present at about 0.02 to about 15 percent by weight.
- 1 5. The liquid pharmaceutical composition according to Claim 1, wherein the amount of
2 polyethylene glycol is from about 0.05 to about 10 weight percent.
- 1 6. The liquid pharmaceutical composition according to Claim 5, wherein the amount of
2 polyethylene glycol is from about 0.1 to about 5 weight percent.
- 1 7. The liquid pharmaceutical composition according to Claim 1, wherein said
2 polyethylene glycol is of molecular weight of from about 2000 to about 8000.
- 1 8. The liquid pharmaceutical composition according to Claim 1, wherein the polyvinyl
2 pyrrolidone and/or copolyvidone is present at about 0.1 to about 30 weight percent.
- 1 9. The liquid pharmaceutical composition according to Claim 8, wherein the polyvinyl
2 pyrrolidone and/or copolyvidone is present at about 1 to about 7 weight percent.
- 1 10. The liquid pharmaceutical compositions according to Claim 1, further comprising a
2 sweetening agent and/or a viscosity building agent.

- 1 11. The liquid pharmaceutical composition according to Claim 10, wherein the said
2 sweetening agent is selected from the group consisting of sugar, invert sugar,
3 glucose, fructose, sorbitol, mannitol, xylitol, a high intensity artificial sweetener, a
4 dipeptide sweetener, and combinations thereof.
- 1 12. The liquid pharmaceutical composition according to Claim 10, wherein said
2 sweetening agent is present at about 30 to about 90 weight percent.
- 1 13. The liquid pharmaceutical composition according to Claim 10, wherein the said
2 viscosity-building agent is selected from the group consisting of glycerin, xanthan
3 gum, carrageenan, tragacanth, guar gum, pectin, carboxymethylcellulose,
4 hydroxypropyl methylcellulose, methylcellulose, microcrystalline cellulose and
5 carboxymethylcellulose blends, and mixtures thereof.
- 1 14. The liquid pharmaceutical composition according to Claim 10, wherein said viscosity
2 building agent is present in an amount from about 0.1 to about 3 weight percent.
- 1 15. The liquid pharmaceutical composition according to Claim 1, wherein said
2 composition is used to treat fever, infection, headache, pain, inflammation, excess
3 mucus or phlegm, coughing, allergies, allergic diseases, nausea, vomiting, and
4 motion sickness.
- 1 16. The liquid pharmaceutical composition according to Claim 15, wherein said
2 unpleasant tasting drug is selected from the group consisting of an analgesic, an
3 anti-inflammatory drug, an antihistamine, a decongestant, anti-infective, a
4 mucolytic, an antitussive, an expectorant, and combinations thereof.
- 1 17. The liquid pharmaceutical composition according to Claim 16, wherein said analgesic
2 or said anti-inflammatory drug is selected from the group consisting of
3 acetaminophen, ibuprofen, naproxen, mefenamic acid, ketoprofen, celecoxib,
4 rofecoxib, and tramadol, and combinations thereof.
- 1 18. The liquid pharmaceutical composition according to Claim 16, wherein said
2 antihistamine is selected from the group consisting of loratadine,

3 descarboethoxyloratadine, diphenhydramine, brompheniramine, chlorpheniramine,
4 terfenadine, cetirizine, and combinations thereof.

1 19. The liquid pharmaceutical composition according to Claim 16, wherein said
2 decongestant is selected from phenylpropanolamine, pseudoephedrine,
3 phenylephrine, and combinations thereof.

1 20. The liquid pharmaceutical composition according to Claim 16, wherein said anti-
2 infective is selected from amoxicillin, ampicillin, cloxacillin, flucloxacillin,
3 penicillin, cephalexin, and combinations thereof.

1 21. The liquid pharmaceutical composition according to Claim 16, wherein said
2 mucolytic is selected from the group consisting of ambroxol, carbocisteine, and
3 bromhexine, and combinations thereof.

1 22. The liquid pharmaceutical composition according to Claim 16, wherein said
2 antitussive or said expectorant is selected from the group consisting of caramiphen,
3 dextromethrophan hydrobromide, codeine phosphate, codeine sulfate, guaifenesin,
4 and combinations thereof.

1 23. The liquid pharmaceutical composition according to Claim 22, wherein said
2 guaifenesin is present in an amount of about 1 to about 5 weight percent.

1 24. The liquid pharmaceutical composition according to Claim 23, further comprising at
2 least one additional drug selected from the group consisting of a bronchodilator, a
3 mucolytic, an antitussive, and combinations thereof.

1 25. The liquid pharmaceutical composition according to Claim 24, wherein said
2 bronchodilator is selected from the group consisting of salbutamol, terbutaline,
3 theophylline, and combinations thereof.

1 26. The liquid pharmaceutical composition according to Claim 24, wherein said
2 antitussive is selected from the group consisting of caramiphen, dextromethrophan
3 hydrobromide, codeine phosphate, codeine sulfate, and combinations thereof.

- 1 27. The liquid pharmaceutical composition according to Claim 24, wherein said
2 mucolytic is selected from the group consisting of ambroxol, carbocisteine, and
3 bromhexine, and combinations thereof.
- 1 28. The liquid pharmaceutical composition according to Claim 17, wherein said
2 acetaminophen is present in an amount of about 1 to about 10 weight percent.
- 1 29. The liquid pharmaceutical composition according to Claim 28, further comprising at
2 least one additional drug selected from the group consisting of an analgesic, an
3 anti-inflammatory drug, an antihistamine, a decongestant, an antitussive, an
4 expectorant, a mucolytic, and combinations thereof.
- 1 30. The liquid pharmaceutical composition according to Claim 29 wherein said analgesic
2 or said anti-inflammatory agent is selected from the group consisting ibuprofen,
3 naproxen, mefenamic acid, ketoprofen, celecoxib, rofecoxib, tramadol, and
4 combinations thereof.
- 1 31. The liquid pharmaceutical composition according to Claim 29, wherein said
2 antihistamine is selected from the group consisting of loratadine,
3 descarboethoxyloratadine, diphenhydramine, brompheniramine, chlorpheniramine,
4 terfenadine, cetirizine, and combinations thereof.
- 1 32. The liquid pharmaceutical composition according to Claim 29, wherein the
2 decongestant is selected from the group consisting of phenylpropanolamine,
3 pseudoephedrine, phenylephrine, and combinations thereof.
- 1 33. The liquid pharmaceutical composition according to Claim 29, wherein said
2 antitussive or said expectorant is selected from the group consisting of caramiphen,
3 dextromethorphan hydrobromide, codeine phosphate, codeine sulfate, guaifenesin,
4 and combinations thereof.
- 1 34. The liquid pharmaceutical composition according to Claim 29, wherein said
2 mucolytic is selected from the group consisting of ambroxol, carbocisteine, and
3 bromhexine, and combinations thereof.
- 1 35. A liquid pharmaceutical composition comprising:

2 5 g acetaminophen, 0.3 g xanthan gum, 55 g sucrose, 10 g 70% sorbitol
3 solution, 20 g invert sugar, 5 g glycerin, 2.5 to 5 g crospovidone, 0
4 to 2.5 g polyethylene glycol with an average molecular weight
5 between 1000 to 4000, 0.2 g sodium benzoate, 0.05 g sorbitan
6 monolaurate, 0.2 g edetate disodium, 0.2 g sucralose, 0.13 g
7 saccharin sodium, 0 to 0.006 g FD&C or D&C color, 0.2 to 0.4 g
8 flavor, water to a volume of 100 mL, citric acid-sodium citrate
9 dihydrate to a pH of 5 to 6.

1 36. A liquid pharmaceutical composition comprising:

2 10 g acetaminophen, 0.3 g xanthan gum, 54 g sucrose, 10 g 70% sorbitol
3 solution, 20 g invert sugar, 5 g glycerin, 5 to 10 g crospovidone, 0
4 to about 1 g polyethylene glycol with an average molecular weight
5 between 1000 to 4000, 0.2 g sodium benzoate, 0.05 g sorbitan
6 monolaurate, 0.2 g edetate disodium, 0.4 g sucralose, 0.26 g
7 saccharin sodium, 0 to 0.006 g FD&C or D&C color, 0.2 to 0.4 g
8 flavor, water to a volume of 100 mL, citric acid-sodium citrate
9 dihydrate to a pH of 5 to 6.

1 37. A liquid pharmaceutical composition comprising :

2 2 to 4 g guaifenesin, 51 g sucrose, 30 g 70% sorbitol solution, 7.5 g
3 glycerin, 2.5 g to 5 g povidone, 0 to 1.5 g polyethylene glycol with
4 an average molecular weight between 1000 to 4000, 0.2 g sodium
5 benzoate, 0.1 g sucralose, from about 0.2 to about 0.4 g flavor,
6 water to a volume of 100 mL, citric acid to a pH of 3 to 4.

1 38. A liquid pharmaceutical composition comprising :

2 0.3 g dextromethorphan hydrobromide, 60 g sucrose, 20 g invert sugar, 2.5
3 g to 5 g povidone, from about 0 to 1 g polyethylene glycol with an
4 average molecular weight between 1000 to 6000, 0.2 g sodium
5 benzoate, 0.2 g sucralose. 0.13 g saccharin sodium, 0.2 to about 0.4

6 g flavor, water to a volume of 100 mL, citric acid-sodium citrate
7 dihydrate to a pH of 4.5 to 5.5.

1 39. A liquid pharmaceutical composition comprising :

2 0.3 g diphenhydramine hydrochloride, 40 g 70% sorbitol solution, 30 g
3 glycerin, 2.5 g to 5 g povidone, 0 to 2.25 g polyethylene glycol with
4 an average molecular weight between 1000 to 8000, 0.2 g sodium
5 benzoate, 0.2 g sucralose. 0.13 g saccharin sodium, 0.2 to 0.4 g
6 flavor, water to a volume of 100 mL, citric acid-sodium citrate
7 dihydrate to a pH of 4.5 to 5.5.

1 40. A liquid pharmaceutical composition comprising :

2 0.08 g brompheniramine maleate, 40 g 70% sorbitol solution, 30 g glycerin,
3 2.5 g to 5 g povidone, 0 to 2.25 g polyethylene glycol with an
4 average molecular weight between 1000 to 8000, 0.2 g sodium
5 benzoate, 0.2 g sucralose. 0.13 g saccharin sodium, 0.2 to 0.4 g
6 flavor, water to a volume of 100 mL, citric acid-sodium citrate
7 dihydrate to a pH of 3 to 4.

1 41. A ready-to-use powder or granules for reconstitution wherein after reconstitution to
2 100 mL with water, the liquid pharmaceutical composition comprises:

3 3.25 to 13 g amoxicillin trihydrate, 45 g sucrose, 0.06 g sorbitan
4 monolaurate, 0.5 to 2.5 g povidone and/or copolyvidone, 0.1 to
5 about 0.5 g polyethylene glycol with an average molecular weight
6 between 1000 to 8000, 0.10 g methylparaben, 0.02 propylparaben, 0
7 to 0.004 g FD&C or D&C color, 0.20 to 1 g flavor, 1.2 g
8 precipitated silica, and sodium citrate to pH 4-6.

1 42. A ready-to-use powder or granules for reconstitution wherein after reconstitution to
2 100 mL with water, the liquid pharmaceutical composition comprises:

3 2 to 10 g cloxacillin sodium, 45 g sucrose, 0.06 g sorbitan monolaurate, 0.5
4 to 2.5 g povidone and/or copolyvidone, 0.1 to about 0.5 g

5 polyethylene glycol with an average molecular weight between
6 1000 to 8000, 0.10 g methylparaben, 0.02 propylparaben, 0 to 0.004
7 g FD&C or D&C color, 0.20 to 1 g flavor, 1.2 g precipitated silica,
8 and sodium citrate to pH 4-6.

1 43. A method for preparing a taste-masked liquid pharmaceutical composition,
2 comprising combining:

3 at least one unpleasant-tasting drug;

4 polyethylene glycol with a molecular weight of at least 900;

5 polyvinyl pyrrolidone and/or a copolyvidone; and

6 an aqueous liquid excipient base.

1 44. The method according to Claim 43, wherein said polyethylene glycol has an average
2 molecular weight of from about 2000 to about 8000.

1 45. The method according to Claim 43, wherein said polyethylene glycol has an average
2 molecular weight of from about 4000 to about 6000.

1 46. The method according to Claim 43, wherein said liquid pharmaceutical composition
2 further comprises one or more additives selected from the group consisting of
3 sweetening agents, flavors, colorants, antioxidants, chelating agents, viscosity-
4 building agents, surfactants, pH modifiers, bulking agents, acidifiers, cosolvents,
5 anticaking agents, and mixtures thereof.